USSR

KHIYIRBEKOV, T. E., Materialy Itog. nauchn. konferentsii. Kuybyshev. gos. ped. in-t, 1970, Vyssh. matematika, Kuybyshev, 1970, pp 51-52

satisfying the conjugacy conditions

$$xu(x, -0) = u(x, +0),$$

$$\lim_{y \to -0} (-y)^{2p_1} u_y = \beta(x) \lim_{y \to +0} y^{2p_1} u_y$$

is proved for all $x \in (0, 1)$. N. Flaysher.

2/2

Luminescense

USSR   UDC 661.143:546.431'821'185(088.8)

GUGEL', B. M., LODYGIN, N. A., GOLUBEV, I. F., KHIZHA, V. S., BLYAKHMAN,
E. A., KUTSENKO, N. A., SIDOROV, M. D., ZVYAGIN, V. B., VAKHRAMOV, V. P.,
AGAPOV, V. I., GARKUSHA, V. A., KHUSAINOVA, R. S.

"Phosphor for Low-Pressure Luminescent Tubes"

USSR Author's Certificate No 336342, filed 19 May 70, published 22 May 72
(from RZh-Khimiya, No 2(II), Feb 73, Abstract No 2L148P)

Translation: In order to increase the light yield of the tubes, the proposed
phosphor includes the following: barium-titanium phosphate, calcium halo-
phosphate, strontium and magnesium orthophosphate and magnesium fluorogerman-
ate. The barium-titanium phosphate, the calcium halophosphate, the strontium
orthophosphate, magnesium orthophosphate and magnesium fluorogermanate are
introduced in the following proportions by weight: 4-6:2.5-4:0.4-0.8:0.13-0.25
respectively. As an example, let us take weighed samples of 4.36 kg of barium-
titanium phosphate, 3.84 kg of calcium halophosphate, 0.40 kg of magnesium-
strontium orthophosphate and 0.24 kg of magnesium fluorogermanate. Put them
in a porecelain cylinder and mix for 1 hour. A suspension is prepared from
the mixture obtained and it is applied to the tubes.

1/1

USSR

UDC: 621.372.852.6

BAKLANOV, O. D., BAL'ZAMOV, B. N., USTIMENKO, V. V., IVANOV, N. S., KRAV-CHENKO, V. F., ZHILKOV, V. S., KHIZHNIK, N. A., PIROTTI, Ye. L.

"An Impedance Transformer Based on a Cylindrical Waveguide"

Translation: The paper describes the design of an impedance transformer based on a cylindrical waveguide. An analysis of the results of experimental studies shows that practical realization of the device is feasible in micro-wave technology. The proposed design may find application in synthesis of automatic lines based on cylindrical waveguides. Resumé.

1/1

3

USSR

UDC: 621.372.852.6

PIROTTI, Ye. L., BAKLANOV, O. D., BAL'ZAKOV, B. N., KRAVCHENKO, V. F.,
ZHILKOV, V. S., KHIZHNIK, N. A., USTIMENKO, V. V.

"A Method of Calculating Impedance Transformers Based on Rectangular Wave-
guides"

Translation: The authors proposed a fundamentally new method of calculating
an impedance transformer on the basis of a strict solution of the internal
problem of electrodynamics using integrodifferential equations. An analysis
of the results of computational and experimental research shows that the
procedure for calculating and designing the proposed model may find extensive
practical application in a number of microwave devices as well as in the
development of an automatic waveguide line. Five illustrations, bibliography
of five titles. Resumé.

1/1

1/2   024   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--SCATTERING OF ELECTROMAGNETIC WAVES AT REGULARLY SHAPED BODIES
   SITUATED IN A MICROWAVE DUCT -U-
AUTHOR-(03)-PIROTTI, YE.L., KRAVCHENKO, V.P., KHIZHNYAK, M.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A,
   FIZIKO-TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32, MAY 1970, P. 464-467
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE SCATTERING, CIRCULAR WAVEGUIDE,
   RECTANGULAR WAVEGUIDE, INTEGRAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1644   STEP NO--UR/0441/70/032/000/0464/0467

CIRC ACCESSION NO--AT0133549
                         UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE SCATTERING OF
ELECTROMAGNETIC WAVES AT A GROUP OF ELLIPSOIDAL INHOMOGENEITIES LOCATED
IN WAVEGUIDES OF RECTANGULAR AND CIRCULAR CROSS SECTION. THE ANALYSIS
MAKES USE OF INTEGRAL EQUATIONS, WHICH MAKES IT POSSIBLE TO SATISFY
SIMULTANEOUSLY THE BOUNDARY CONDITICNS AT THE INHOMOGENEITIES AND AT THE
WAVEGUIDE WALLS.   EXPRESSIONS ARE DERIVED FOR CALCULATING THE STRUCTURE
OF THE STRAY FIELD AND THE REFLECTICN AND TRANSMISSICN COEFFICIENTS FOR
ANY DISTRIBUTION OF THE SCATTERERS IN THE WAVEGUIDE. EXPRESSIONS FOR
THE SCATTERING AT ONE AND AT TWO SPHERICAL INHOMOGENEITIES ARE ALSO
OBTAINED. THE EXPRESSIONS ARE CONVENIENT FOR USE IN CALCULATIONS AND
PHYSICAL ANALYSIS.

UNCLASSIFIED

Acc. Nr. AP0048043   Abstracting Service: 5/70   Ref. Code:
                      INTERNAT. AEROSPACE ABST.   UR0185

KHIZHNYAK M.A.

/ A70-23190 #   Investigation of the electron-ion oscillation
discharge as a source of neutral particles (Doslidzhennia kolival'nogo
elektronno-ionnogo rozriadu iak dzherela shvidkikh neitral'nikh
chastinok). V. M. Rashkovan and M. A. Khizhniak (Kharkivs'kii
Aviatsiinii Institut, Kharkov, Ukrainian SSR). *Ukrains'kii Fizichnii
Zhurnal*, vol. 15, Jan. 1970, p. 40-46. In Ukrainian.
    Production of the fast neutral particles along the axis of the
electron-ion oscillation discharge was investigated. The discharge
exists stationary in the change potential electrodes system and differs
from the Penning's discharge. The optimum conditions for
production of the fast neutral particles are shown to be a function of
gas pressure and magnetic field.   (Author)

ALS

REEL/FRAME
19791725

USSR

NERUKH, A. G. and KHIZHNYAK, N. A.

"Integral Maxwell Equations in Wave Dispersion Problems of Moving Media"

Abstract: The purpose of this theoretical paper is to generalize results obtained in an earlier article (N. A. Khizhnyak, ZhTF, vol 23, 1958, p 1592). The Maxwell equations are obtained in integral form for moving media. Their effectiveness in solving diffraction problems with varying boundary values is illustrated by an example of radio-wave dispersion in a small dielectric or ideally conducting body formed in variable ellipsoid deformations. In deriving the integral Maxwell equations, the authors consider a nonconducting body of limited dimensions in a vacuum, with the configurations of the body variable in time. It is assumed that the velocity of the medium is small, such that $v/c \ll 1$, where v is the velocity and c the speed of light. Three particular cases of electromagnetic wave dispersions are solved.

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USSR

ASEYEV, G. G., KUZNETSOVA, G. G., REPALOV, N. S., KHIZHNYAK, N. A., Physical-
-Technical Institute, Academy of Sciences of the UkrSSR, Khar'kov

"Parametric Instability of an Electron Beam Modulated by an External Elec-
trostatic Field"

Abstract: The paper presents the results of experiments on studying the
instability of an electron beam passing through a spatially periodic electric
field. The conditions of existence of instability are experimentally de-
termined. The increment of instability is measured together with its de-
pendence on the electric field. The energy distributions of the electrons
in the beam are measured in various operating modes. Some nonlinear limi-
tations of stability are observed. The results agree with the theoretical
model of parametric instability. The authors thank A. P. Voronin for pre-
paring the experiment and assisting with the measurements.

1/1

USSR   UDC   621.372.413

POPOV, V. A. and KHIZHNYAK, N. A.

"Theory of Resonators Loaded With Resonance Disturbing Bodies"

Translation: The method of integral equations is used to obtain the expressions for the field and natural frequency of a resonator of regular shape with a dielectric disturbance. The well known formulas of Slater and Mayer are obtained in the case of a small spherical disturbance. In the case of a resonance disturbance, the frequency shift is commensurate with the difference between the natural frequencies of the resonator while the field takes on a structure which is transitional to the structure of the fields of the adjacent undisturbed modes of oscillation. It is shown that the structure of the field of a resonator can be controlled by changing the properties of the resonance disturbing body. Original article: three illustrations and five bibliographic entries.   Resume.

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USSR

RASHKOVAN, V. M.; KHIZHNYAK, N. A. (Khar'kov Aviation Institute) .

"Study of the Physical Processes in an Electron-Ion Oscillatory Discharge",

ABSTRACT: The work concerns experimental studies of the physical processes involved in an electron-ion oscillatory discharge occurring in a system of alternating positive and negative electrodes. The axial distribution of the potential in a system in which there are plasmoids in the vicinity of the positive electrodes was studied. The radial and axial structures of the potential inside the plasmoids, as well as the distribution of the temperature T_e and density d_e of the plasma in the plasma anode, were studied.

It is shown that in the region of the plasmoids the plasma potential equalizes itself along the axis. A radial decrease of the potential inside the plasmoid was observed. The average temperature of the plasma inside the plasma anode T_e is 5-7 ev, and the density of the plasma varies within the limits $5 \cdot 10^8 - 5 \cdot 10^9 cm^{-3}$.
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USSR

RASHKOVAN, V. M.; KHIZHNYAK, N. A., Ukrainskiy Fizicheskiy Zhurnal; July, 1972; pp 1106-10

On the basis of the results of the studies conclusions are drawn concerning the movement of particles in electron and ion oscillatory configurations.

2/2

USSR

BELIKOV, A. G., GONCHARENKO, V. P., GONCHARENKO, D. K., DEREPOVSKIY, N. T., SAFRONOV, B. G., KHIZHNIYAK, N. A.

"Energy Characteristics of a Coaxial Plasma Source"

Abstract: Some considerations are presented on selecting the parameters of a coaxial plasma source. On the basis of this preliminary theoretical study, a plasma source is determined and its energy characteristics are experimentally investigated. It is shown that plasmoid energy increases in proportion to the energy stored in the battery of the plasma source. The total plasmoid energy is greater than 1 kJ. It is shown that pure hydrogen plasmoids can be produced. Eight figures, bibliography of five titles.

1/1

USSR

KHIZHNYAK, N. A., AZOVSKIY, Yu. S., GUZHOVSKIY, I. T.

"Interaction of Plasmoids with an Axially Symmetric Magnetic Field"

Kiev, Physics of Plasma and Problems of Controlled Thermonuclear Synthesis (collection); No 2, 1971, pp 5-52

Abstract: The work is in two parts. In the first part the authors theoretically and experimentally studied the interaction of plasmoids with an inhomogeneous axial field; and in the second part, their behavior in a homogeneous field.

In the first part a theory developed in an approximation of a model of a compressed helix closely describes qualitatively such experimental relationships as the variation of the radius, induced current, temperature, and velocity of the center of inertia of a plasmoid. At the same time, significant differences in the character of the interaction beforehand with the fields of magnetized and nonmagnetized plasmoids were found. The theory also qualitatively explains the experimentally observed capability of the plasmoids to penetrate a field exceeding the critical field.

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USSR

KHIZHNYAK, N. A. et al, Physics of Plasma and Problems of Controlled Thermonuclear Synthesis (collection), No 2, 1971, pp 5-52

In the second part longitudinal and transverse broadening of a plasmoid in a homogeneous field was studied. The experimental results obtained agree well qualitatively with theory (in the hydrodynamic approximation). Under the given conditions of the experiment it appeared that the basic process is the longitudinal thermal broadening and adiabatic cooling of the plasmoid; the rate of such broadening is at least 2 orders of magnitude greater than the rate of transverse broadening.

The article includes 34 figures. There are 54 bibliographic references.

2/2

USSR

AZOVSKIY, Yu. S., GUZHOVSKIY, I. T., KHIZHNYAK, N. A.

"Electric Polarization of a Plasma Flow in an Axisymmetric Magnetic Field"

Abstract: The authors continue their investigation of the interaction
between plasma flows and axisymmetric magnetic fields. In their previous
work ("Plasma Physics and Problems of Controlled Thermonuclear Synthesis",
a collection of works, No 4, "Nauk. dumka", Kiev, 1970, p 5) the authors
showed that many phenomena which are experimentally observed when an
extended plasma flow interacts with a magnetic field (change in azimuthal
induced current, radial compression, deceleration, and heating) are satis-
factorily described in the qualitative approximation by a generalized
"small compressed plasmoid" model. In this paper, an experimental and
theoretical investigation is made of the behavior of electric polarization
fields in a plasma flow interacting with an axisymmetric magnetic field.
A comparison is drawn between experimental and theoretical curves for
radial and axial fields of polarization in both homogeneous and nonhomo-
geneous magnetic fields. Eight figures, bibliography of eleven titles.

1/1

USSR

KHIZHNYAK, N. A., and LYSENKO, O. Ye.

"Stability of an Incompressible Equilibrium Plasma Ellipsoid in the Field of a Traveling Electromagnetic Wave"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2581-2582

Abstract: Ensuring the equilibrium and stability of plasmoids is called the most important problem in the practical achievement of radiation acceleration of plasmoids by the Veksler method. The problem of the equilibrium of a plasmoid in external monochromatic high-frequency fields was the subject of previous studies in which it was shown that if a plasmoid ($a/\lambda < 1$ and $a/\delta < 1$, where a is the size of the plasmoid, λ is the wavelength of the external high-frequency field, and δ is the depth of the skin layer) is placed on the axis of a cylindrical waveguide for slow waves and a traveling wave of the type E_{01} propagates in the waveguide, equilibrium with the external field is achievable by rotation of the bunch as a whole with a certain equilibrium frequency ω_0 around the axis of symmetry. This paper discusses the stability of such configurations with respect to lower deformation modes. Stability of an ellipsoidal plasmoid in external high-frequency fields is understood to 1/2

USSR

KHIZHNYAK, N. A., and LYSENKO, O. Ye., Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2581-2582

mean stability of the boundaries of the equilibrium ellipsoid with respect to small perturbations of its surface. Since equilibrium and stability are ensured by the mean square force, only perturbations with a frequency $\Omega \ll \omega$ is the frequency of the external field, are suppressed. This imposes certain limitations on the results obtained. One would expect that these limitations are not force limitations, since equilibrium configurations occur only for $\Omega_p \omega < 1$. The problem of the stability of the surface of the plasmoid can be solved if terms of the order $(a/\lambda)^2$ and higher are taken into account in the expansion of the external focusing fields. It is shown that incompressible equilibrium ellipsoids will be stable for which $\Omega^2 > 0$ over entire surface of the ellipsoid.

$$x^2 + y^2/a^2 + z^2/b^2 = 1.$$

The analytical expression for Ω^2 is not given. A figure is provided showing the relief of the region of the possible existence of stable equilibrium configurations of an incompressible plasmoid with a surface equation of the above form.

2/2

1/3   039   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--CALCULATION OF PLASMOID MOTION IN AN AXIALLY SYMMETRIC, SPATIALLY
   PERIODIC, ALTERNATING MAGNETIC FIELD -U-
AUTHOR-(05)-KALMYKOV, A.A., TERESHIN, V.I., CHEBOTAREV, V.V., KHIZHNYAK,
   N.A., LYSENKO, O.YE.
COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, ZHURNAL TEKHICHESKOY FIZIKI, VOL. 40, NO. 3, MAR 70, PP
   466-474
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMOID, PLASMA FLOW, MOTION EQUATION, COMPUTER CALCULATION,
   VELOCITY DISTRIBUTION, MAGNETIC FIELD EFFECT, PLASMA CONDUCTIVITY,
   MAGNETIC PERMEABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
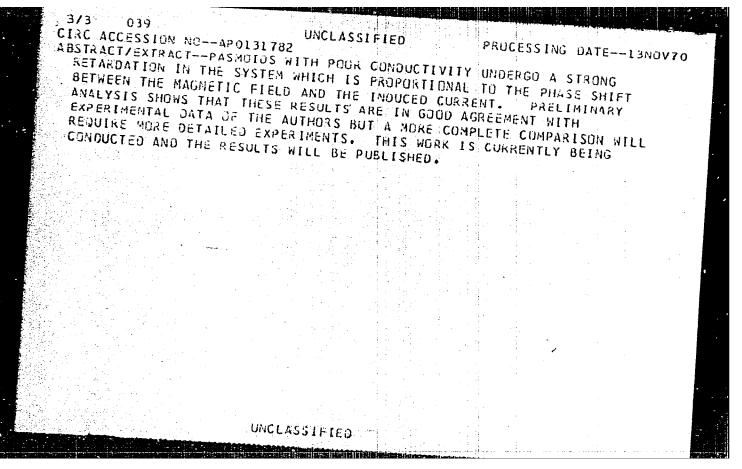PROXY REEL/FRAME--3004/1351   STEP NO--UR/0057/70/040/003/0466/0474

CIRC ACCESSION NO--AP0131782
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0131782

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOTION OF A PLASMOID IN A
MAGNETIC FIELD PRODUCED BY A SYSTEM OF COILS WITH MUTUALLY OPPOSING
CURRENTS IS CONSIDERED. THE ANALYSIS IS CONDUCTED WITHIN THE FRAMEWORK
OF THE INTEGRAL MODEL OF A SMALL BUNCH, CONSIDERING THE EFFECTS OF
DISSIPATION AND THE GAS KINETIC PRESSURE. THE PAPER IS AN EXTENSION OF
EXPERIMENTAL WORK IN WHICH STABILIZATION AND FOCUSING OF A PLASMA MOVING
IN A SPATIALLY PERIODIC, ALTERNATING, AXIALLY SYMMETRIC MAGNETIC FIELD
WAS FIRST OBSERVED. THE EQUATIONS OF MOTION WERE INTEGRATED ON A
COMPUTER FOR DIFFERENT PARAMETERS OF THE PLASMOID. THE FOLLOWING
CONCLUSIONS WERE DRAWN FROM THE COMPUTATIONS: 1. THE INITIAL VELOCITY
OF THE PLASMOID IS THE BASIC PARAMETER EFFECTING THE PASSAGE OF
PLASMOIDS THROUGH THE SYSTEM. 2. FOR LARGE INITIAL VELOCITIES THERE
EXISTS AN INTERVAL OF VALUES OF THE RATIO N-H PRIME2 SUB0 UNDER WHICH
PASSAGE OF THE PLASMOID THROUGH THE SYSTEM IS OBSERVED. AS THE INITIAL
VELOCITY INCREASES, THE N-H PRIME2 SUB0 INTERVAL BROADENS. 3. UPON
REFLECTION OF THE PLASMOIDS THE PLASMA IS CAPTURED IN THE MAGNETIC CELL
WITH SUBSEQUENT EMISSION THROUGH THE MAGNETIC SLIT. 4. WHEN BUNCHES
WITH GOOD CONDUCTIVITY PASS THROUGH THE SYSTEM, CURRENTS ARE INDUCED IN
THEM WHICH FULLY COMPENSATE THE APPLIED MAGNEITC FIELD SO THAT THERE IS
NO FIELD INSIDE THE PLASMOID. 5. WHEN PLASMOIDS WITH POOR CONDUCTIVITY
PASS THROUGH THE SYSTEM, A SHIFT IN PHASE OCCURS BETWEEN THE MAGNETIC
FIELD AND THE INDUCED CURRENT. IN THIS CASE THE MAGNETIC FIELD
PENETRATES THE PLASMOID. 6.

UNCLASSIFIED

CIRC ACCESSION NO--AP0131782   UNCLASSIFIED   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--PASMOIDS WITH POOR CONDUCTIVITY UNDERGO A STRONG
RETARDATION IN THE SYSTEM WHICH IS PROPORTIONAL TO THE PHASE SHIFT
BETWEEN THE MAGNETIC FIELD AND THE INDUCED CURRENT.   PRELIMINARY
ANALYSIS SHOWS THAT THESE RESULTS ARE IN GOOD AGREEMENT WITH
EXPERIMENTAL DATA OF THE AUTHORS BUT A MORE COMPLETE COMPARISON WILL
REQUIRE MORE DETAILED EXPERIMENTS. THIS WORK IS CURRENTLY BEING
CONDUCTED AND THE RESULTS WILL BE PUBLISHED.

UNCLASSIFIED

USSR

UDC 621.372.823

PIROTTI, YE. L., KRAVCHENKO, V. F., KHIZHNYAK, N. A.

"Theory of Scattering of Electromagnetic Waves on Regularly Shaped Inhomogeneities in Cylindrical Wave Guides"

Translation: Integrodifferential equations are used to solve the problem of scattering of electromagnetic waves on inhomogeneities of the ellipsoid type.

1/1

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USSR

UDC 621.372.822

PIROTTI, YE. L., KHIZHNYAK, N. A., KRAVCHENKO, V. F.

"Study of Scattering of Electromagnetic Waves on Regular-Shaped Bodies in a Rectangular Wave Guide"

Translation: Integrodifferential equations are used to solve the problem of scattering of electromagnetic waves on a group of ellipsoids.

1/1

USSR

UDC 621.317.335.3

KOZAR', A. I., KHIZHNYAK, N. A.

"Problem of Exact Measurement of Large Values of the Dielectric Constant of Ferroelectrics"

Translation: The method of integral equations is used to solve the internal problem of electrodynamics of scattering of electromagnetic waves in dielectric spheres with a large value of ε in a rectangular wave guide. On the basis of solution of the problem a new method of measuring large values of the dielectric constant ε of ferroelectrics with high accuracy is proposed. It is demonstrated that this method can be used for precision measurements of ε in a wide frequency and temperature range. There are 4 illustrations and a 6-entry bibliography.

1/1

USSR

UDC 621.372.82

KHIZHNYAK, N. A.

"Theory of Wave Guides Loaded with a Semiinfinite Chain of Homogeneous Scattering Bodies"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 3-12 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract 4B10C)

Translation: The dispersion properties and structure of the transmitted and reflected waves in a wave guide are calculated. The bibliography has 3 entries.

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USSR

KHIZHNYAK, N. A.; LYSENKO, O. Ye.

"Scattering of Electromagnetic Waves by Ellipsoidal Plasma Formations in the Atmosphere"

Leningrad, Journal of Technical Physics; March, 1970; pp 475-81

Abstract: The authors solve the problem of the scattering of electromagnetic waves by ellipsoidal formations with arbitrary electrical and magnetic aniso-tropy. It is shown that if the internal fields are expanded with respect to the parameter $\frac{a}{\lambda} < 1$ (a is the dimensions of the ellipsoid; λ is the length of of the wave scattered by it), the determination of the coefficients in the ex-pansion leads to the solution of a system of linear algebraic equations. A method is worked out for deriving these equations.

Expressions accurate to and including the $\left(\frac{a}{\lambda}\right)^2$ terms are obtained for the internal fields and fields in the wave band. An expression for the differential scattering cross section is obtained. The basic terms have the

1/2

USSR

KHIZHNYAK, N. A.; LYSENKO, O. Ye., Journal of Technical Physics; March 1970;
pp 475-81

same form as with wave scattering by a sphere. The ellipticity of the forma-
tion is manifested in terms on the order of $\left(\frac{a}{\lambda}\right)^2$.

The article includes 13 equations and two figures. There are four
bibliographic references.

UDC 537.533.3

USSR

KORSUNSKIY, A. M., KHIZHNYAK, N. A.

"Limiting Fluctuation Amplitudes of a Multivelocity Electron Flow in Crossed Electric and Magnetic Fields"

Abstract: The transition, of a double-beam system placed in an external magnetic field of finite magnitude from the linear stage of oscillations to the nonlinear, is investigated. The study is conducted within the framework of quasilinear theory, since the oscillations have a somewhat broad wave-number spectrum. Monochromatic oscillations, to which quasilinear theory is directly applicable, are considered. The system is assumed to consist of N-electron beams with unperturbed densities ρ_{i0} ($i = 1, 2, ...N$) and with unperturbed velocities v_i0 moving at an angle θ to the direction of the external magnetic field H_0. The development of longitudinal oscillations in the beams is discussed and the process of establishing stationary oscillations for this system is studied. A relationship is established between the square of the limiting amplitude of the oscillations and the beam parameters, the increment in growth, and the angle θ. Limiting amplitudes
1/2

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are calculated for the oscillations and criteria are established under which the amplitude of the monochromatic wave reaches saturation without decaying into harmonics, even though the saturation is caused by the interaction of the basic wave with its harmonic. It is shown that intersection of the beam trajectories does not occur in the range of parameters considered.

2/2

KALMYKOV, A. A., TERESHIN, V. I., CHEBCTAREV, V. V., KHIZHNYAK, N. A. and
LYSENKO, O. YE.

"Calculation of Plasmoid Motion in an Axially Symmetric, Spatially Periodic,
Alternating Magnetic Field"

Abstract: The motion of a plasmoid in a magnetic field produced by a system of
coils with mutually opposing currents is considered. The analysis is conducted
within the framework of the integral model of a small bunch, considering the ef-
fects of dissipation and the gas kinetic pressure. The paper is an extension of
experimental work in which stabilization and focusing of a plasma moving in a
spatially periodic, alternating, axially symmetric magnetic field was first ob-
served. The equations of motion were integrated on a computer for different
parameters of the plasmoid. The following conclusions were drawn from the com-
putations: 1. The initial velocity of the plasmoid is the basic parameter ef-
fecting the passage of plasmoids through the system. 2: For large initial velo-
cities there exists an interval of values of the ratio N/H_0^2 under which passage
of the plasmoid through the system is observed. As the initial velocity increases,

1/2

the N/H_0^2 interval broadens. 3. Upon reflection of the plasmoids the plasma is captured in the magnetic cell with subsequent emission through the magnetic slit. 4. When bunches with good conductivity pass through the system, currents are in- duced in them which fully compensate the applied magnetic field so that there is no field inside the plasmoid. 5. When plasmoids with poor conductivity pass through the system, a shift in phase occurs between the magnetic field and the induced current. In this case the magnetic field penetrates the plasmoid. 6. Plasmoids with poor conductivity undergo a strong retardation in the system which is proportional to the phase shift between the magnetic field and the in- duced current. Preliminary analysis shows that these results are in good agree- ment with experimental data of the authors but a more complete comparison will require more detailed experiments. This work is currently being conducted and the results will be published. The interest of B. G. Safronov in this work is acknowledged.

2/2

1/2   043   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--EQUILIBRIUM OF THE PLASMA ELLIPSOID IN AN EXTERNAL HF FIELD -U-

AUTHOR-(02)-KHIZHNYAK, N.A., LYSENKO, O.YE.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, APR. 1970, P. 673-680

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EQUILIBRIUM FLOW, ELLIPSOIDAL SHELL STRUCTURE, PLASMOID, HIGH
    FREQUENCY CURRENT, ROTATIONAL FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1318   STEP NO--UR/0057/70/040/000/0673/0680

CIRC ACCESSION NO--AP0124969
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0124969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXAMINATION OF THE EQUILIBRIUM OF AN ELLIPSOIDAL PLASMOID SUBJECTED TO AN EXTERNAL HF FIELD, USING CERTAIN SIMPLIFYING ASSUMPTIONS. IT IS SHOWN THAT FOR ENSURING THE EQUILIBRIUM, THE PLASMOID SHOULD BE SUBJECT TO A ROTATION AROUND ITS SYMMETRY AXIS. THE ROTATION RATE AND EFFECTIVE POTENTIAL ENERGY NECESSARY FOR EQUILIBRIUM ARE CALCULATED. THE PLASMOIDS IN EQUILIBRIUM ARE FOUND TO ADOPT THE SHAPE OF OBLATE ELLIPSOIDS OF REVOLUTION.

UNCLASSIFIED

USSR   *K*   UDC 533.98

KHIZHNYAK, N. A., Khar'kov Aviation Institute

"Diffusion Expansion of a Plasmoid in a Guiding Longitudinal Magnetic Field"

Abstract: The stability of the parabolic distribution of particles in a plasmoid under nonlinear diffusion caused by electron-ion collisions is investigated. The effect of space recombination, charge exchange, and longitudinal thermal expansion of the plasmoid on plasma density and the boundary between the plasma and the magnetic field is also investigated. It is shown that the diffusion equation becomes essentially nonlinear when a fully ionized plasma expands across the magnetic field and the radial flow of the plasma is determined only by Coulomb electron-ion collisions. There exists a stable solution for this equation with a parabolic distribution of the plasma along the radius and a clear boundary between the plasma and the magnetic field. The change in the radius of the plasma with time is different from that given by the linear theory. Recombination, charge exchange, and longitudinal spreading of the plasmoid affect the transverse diffusion of the plasma and decrease its average density. Solutions with a parabolic particle distribution and a clear boundary between the magnetic field and the plasma still stand under these conditions.
1/1

USSR

RASHKOVAN, V. M., KHIZHNYAK, N. A.

UDC 533.98

"Ellipsoidal Plasma Configurations in a Gas Discharge"

Abstract: The possibilities of setting up plasma ellipsoids in external static fields are investigated in this paper. Such configurations can be used in injector accelerators for radiation acceleration of the plasma. Developing the relationships for creating an equilibrium plasma configuration, the authors begin by considering an uncompensated plasma ellipsoid of revolution under the assumption that the uncompensated charge density throughout the plasma's volume is constant. They also describe experiments they conducted for investigating the configurations arising in a system of ring electrodes with alternating potentials. A schematic of the equipment is given. With it, the authors studied the resulting steady-state plasma bunching as a function of the magnitude of the longitudinally focused magnetic field, the pressure in the gas discharge chamber, and the

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electrode potentials. The experiments were conducted in air,
argon, and helium at pressures varying from 10^{-4} to 10^{-2} mm Hg.
Photos of the ellipsoid configurations are shown. The authors
are members of the Kharkov Aviation Institute.

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1/2   036   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--SCATTERING OF ELECTROMAGNETIC WAVES ON ELLIPSOIDAL PLASMA
    FORMATIONS IN THE ATMOSPHERE -U-
AUTHOR-(02)-LYSENKO, O.YE., KHIZHNYAK, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, MAR. 1970, P. 475-481

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE SCATTERING, ELLIPTICAL BODY, MAGNETIC
    PERMEABILITY, ALGEBRAIC EQUATION, ATMOSPHERIC ELECTROMAGNETIC EFFECT,
    SCATTERING CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0981   STEP NO--UR/0057/70/040/000/0475/0481

CIRC ACCESSION NO--AP0115002
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0115002

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   INVESTIGATION OF THE SCATTERING OF
ELECTROMAGNETIC WAVES ON ELLIPSOIDAL OBJECTS CHARACTERIZED BY CERTAIN
ARBITRARY VALUES OF THE PERMITTIVITY AND MAGNETIC PERMEABILITY TENSORS.
IF THE INTERNAL FIELDS ARE EXPANDED WITH RESPECT TO THE PARAMETER A-L
(WHERE A IS THE SIZE OF THE ELLIPSOID, L IS THE WAVELENGTH, AND A-L IS
SMALLER THAN ONE), IT IS SHOWN THAT THE DETERMINATION OF THE EXPANSION
COEFFICIENTS CAN BE REDUCED TO THE SOLUTION OF A SYSTEM OF LINEAR
ALGEBRAIC EQUATIONS.   A METHOD OF CONSTRUCTING THESE EQUATIONS IS
DESCRIBED, AND EXPRESSIONS ARE DERIVED FOR THE INTERNAL FIELDS AND FOR
THE FIELD IN THE WAVE ZONE WITH AN ACCURACY UP TO THE (A-L) SQUARED
TERMS, INCLUSIVELY.   AN EQUATION IS GIVEN FOR THE DIFFERENTIAL
SCATTERING CROSS SECTION.   THE MAIN COMPONENTS HAVE THE SAME FORM AS IN
THE CASE OF WAVE SCATTERING ON A SPHERE.

USSR   UDC 533.916

ASEYEV, G. G.,KUZNETSOVA, G. G., REPALOV, N. S., SAFRONOV, B. G.,
KHIZHNYAK, N. A .

"Parametric Instability of an Electron Beam in a Spatially Periodic Electric
Field"

Translation: Experimental studies of parametric instability of an electron
beam as it passes through a spatially periodic electric field are described.
The functional relationship between the level of the high-frequency radia-
tion and the accelerating voltage and the current of the gun and also the
magnitude of the external electric field is investigated. It was established
that these relationships have a resonance character. Theoretical and experi-
mental results for the case of resonance at the second harmonic of the
plasma frequency of the beam agree quite satisfactorily. The results are
analyzed.

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USSR

TSAR'KOV, YE. F., KHIZHNYAK, V. N.

"Stability in the Mean Quadratic Trivial Solution of Linear Differential-Difference Stochastic Equations"

Translation: The investigated system of stochastic differential-difference equations

$$\frac{dx}{dt} + \sum_{j=1}^{n} A_j x(t - \Delta_j) + \sum_{j=1}^{N} (d/dt)[W_j(t)] \cdot x(t - \Delta_j) = 0, \qquad (1)$$

where $x \in R^n$, W_j is the matrix of independent processes of Brownian movement.

A study was made of stability in the mean quadratic trivial solution of this system. The authors convert to the system of integral equations

$$x(t) = y(t) + \sum_{j=1}^{N} \int_{0}^{t} h(t - \tau) dW_j(\tau) x(\tau - \Delta_j), \qquad (2)$$

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TSAR'KOV, YE. F., et al., Vopr. dinamiki i prochnosti, vyp. 22, Riga, Zinatiye
Press, 1972, pp 65-72

where $h(t)$ is the matrix satisfying (1) in the absence of disturbances and
the conditions $h(t) \equiv 0$ for $t < 0$ and $h(0)$ is the unit matrix. After row
squaring of the equations from (2) and averaging, the system of integral equa-
tions is obtained with respect to the second order moments of the solutions of
the initial system. The analysis of the latter permits conditions to be ob-
tained which are necessary and sufficient for the stability of the trivial so-
lution (1) in the mean square.

For the equation

$$d^2 x/dt^2 + \alpha(dx/dt) + ax(t) + b[x(t) - x(t - \Delta)] =$$

$$= [x(t) - x(t - \Delta)](dW/dt)$$

which arises when analyzing the stability of the autooscillations of the
cutting tool, it is demonstrated that the presence of a disturbance decreases
the region of stability in the plane of the parameters (a, b).

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USSR   UDC 621.315.592:546.289

ZOTOVA, L.G., KHIZNICHENKO, L.P.

"Effect Of Reactor Irradiation On Mobility Of Dislocations In Germanium"

Izv. AN UzSSR.ser.fiz.-mat.n. (Bulletin Of The Academy Of Sciences Uzberk SSR.
Physico-Mathematical Sciences Series), 1971, No 3, pp 91-94 (from RZh—Elektronika
i yeye primeneniye, No 12, Dec 1971, Abstract No 12B107)

Translation: The speed of motion was investigated of individual dislocations
in monocrystalline Ge up to and after irradiation by neutrons. The measurements
were made by the standard method of a four-point curve in conjunction with the
technique of double selective etching. Specimens in the form of 1 x 3 x 30 mm^2
plates were cut out of ingots of n-type single crystals with a resistivity of
1 ohm.cm and an initial density of dislocations of 10^2 cm^{-2}. The speed of the
dislocation half-loops [polupetel'] was measured in the temperature range of
350-500° and the range of stresses of 0.5-5 kg/mm^2. The specimens were irradi-
ated at 40 and 300° C. The power flux amounted to 1.38 . 10^{12} neutron/cm^2 sec.
The dependence of the speed of motion of the screw dislocations for various
temperatures, on the applied voltage is described by the equation

$$V = V_o \left(T / T_o \right)^m$$

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ZOTOVA, L. G., KHIZNICHENKO, L. P., Izv. AN UzSSR.ser.fiz.-mat.n. (Bulletin Of The Academy Of Sciences Uzberk SSR. Physico-Mathematical Sciences Series), 1971, No 3, pp 91-94 (from RZh—Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B107)

where $\mathcal{T}$ is the voltage necessary for movement of a dislocation with a speed of 1 cm/sec. It was determined that as a result of irradiation, the mobility of the dislocations was decreased. This effect disappeared at 440° C. For irradiated specimens the activity energy equalled (1.90 ± 0.06) ev and for non-irradiated (1.45 ± 0.03) ev. 9 ref. V.B.

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USSR   UDC 632.95

STAMOVA, L., KHLEBAROV, N., and MANEVA, M., Bulgaria

"Biological Activity of Dibromfos"

Abstract: Solutions of different concentrations of dibromofos (0,0-dimethyl-
0-(1,2-dibromo-2,2-dichloroethylphosphate) were tested on fruiting molds,
leaf blotch, and other diseases attacking feed grains. Fungicidal activity
was determined by the radius around the spot of dibromofos in a petri dish
which was sterile. Thirteen different species of fungi were tested using
concentrations of 0.02 to 0.2% solutions. Radii of the sterile zones ranged
from 0 to 24 mm for the former and 26-31 mm for the concentrated solution.
Bacterial activity was determined in a similar way for 11 species using con-
centrations ranging from 0.02 to 0.5%. The sterile zones for this study
ranged from 13 to 26 mm for the least and 45 to 56 mm for the most concen-
trated solutions. It was demonstrated that dibromofos may be used as an
insecticide, a fungicide, or a bacteriacide.

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USSR

UDC: 8.74

ZAYTSEV, N. G., KHLEBNIKOV, A. G., KOROBANOV, M. I.

"Organizing Communication Between the 'Minsk-22' Digital Computer and Subscribers by Means of a Computer-Controlled Automatic Commutator"

Translation: The paper describes the block diagram and schematic of a commutator used as a basis for creating teletype communications between the "Minsk-22" digital computer and 20 subscribers served in sequence by the computer.

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GOLUBTSOV, M. G., KHLEBNIKOV, M. N.

"Dynamic Constants of a Parametrically Excited Magnetostrictive Medium"

Abstract: The equations of state of a polarized ferromagnet are generalized
to the case of a magnetostrictive medium with parameters which are variable
in time. The dynamic constants of the medium were analyzed for quasistationary
electromagnetic oscillations. Some possibilities for reducing the number of
independent elastic and magnetostrictive dynamic constants in the case of
longitudinal magnetic pumping are discussed. In a medium with pumping, viola-
tion of the law of conjugacy of the mechanical stresses in the presence of
interaction of the oscillations on one operating frequency takes place basic-
ally as a result of the magnetic field of the signal which is characteristic
for a passive magnetoelastic medium [K. B. Vlasov, Izv. AN SSSR, Ser. fiz., No
22, 10, 1958]. The asymmetry of the tensor of the mechanical stresses formed
during the process of parametric frequency conversion is created not only by the
magnetic field of the signal, but it is directly connected with the elastic
deformations and rotations in the medium. With parametric frequency conversion
the elastic properties of the medium have sharply expressed anisotropy. The
ΔE-effect essentially depends on the orientation of the mechanical stresses in
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the medium with respect to the vector of the polarizing field and pumping. The magnetoelastic properties of the medium connected with the effects of rota- tion and magnetostriction are also anisotropic, and therefore in a uniform pumping field the periodic variations of the elastic properties of the medium are different in different directions.

2/2

USSR   UDC: 69.001.5:621.311.21.(282.251.2)

BLINKOV, V. V., SKLADIEV, M. F. and SHCHAVELEV, N. F., Candidates of Technical
Sciences, ROZANOV, N. S., Doctor of Technical Sciences, and KHLEBNIKOV, N. V.,
Engineer

"Scientific Research Work for the Krasnoyarsk Hydroelectric Power Plant"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 9, Sep 72, pp 6-10

Abstract: A great deal of scientific research work was done as the basis for
the plan and the construction of the Krasnoyarsk hydroelectric power station.
The organization of this research and introduction of its results, designed to
assure the reliability of structures and increase the technical and economic
indicators of the power plant, were possible due to the close, creative cooper-
ation between planners, constructors, scientists and operating personnel.
Many of the results of the studies performed are of significance not only for
the Krasnoyarsk power plant, but also for many large hydroelectric power plants
under construction, in planning or design. The Krasnoyarsk hydroelectric power
plant, the world's largest, is and remains one of the primary experimental
bases for Soviet water engineering science. Studies included both model-scale
studies and tensometric and other studies of the actual power plant during
various stages of construction.
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91747z   Improvement in the process for drying ammonium sul-
fate. Kagasov, V. M.; Khlebnikov, O. P.; Pinchugov, V. N.
(Karagand. Met. Zavod, Karaganda, USSR). Koks Khim.
1970, (2), 29 (Russ). To diminish the crystal size in by-product
$(NH_4)_2SO_4$ from coking ovens it is recommended to increase the
vacuum above the fluidized layer in the dryer, to increase the
discharge frequency to 58–60 times/hr, to abolish the chain
spreader, and to adjust the thickness of the fluidized layer to
45–55 cm. The investigation of the drying process revealed
that the melting of the salt in the dryer can be avoided to a great
extent without impairing the drying.   A. P. Mueller

REEL/FRAME
19781255

USSR

GAVRILOV, V. I., KHLEBNIKOV, V. N., GAVRILOVA, G. R., and CHERNOKAL'SKIY, B. D., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Synthesis of 10-Alkylphenoxyarsines"

Abstract: A series of new 10-alkylphenoxyarsines was synthesized by reacting appropriate alkylmagnesium halides with 10-chlorophenoxyarsine in benzene or toluene solution. Following compounds were obtained and characterized: 10-propyl-, isopropyl-, n-butyl-, 2-methylpropyl-, tert-butyl-, n-amyl-, 3-methyl-butyl-, n-hexyl-, n-heptyl-, n-octyl-, cyclohexyl-, allyl-, benzyl-, and phenylacetylenylphenoxyarsines.

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UDC 629.19:533.6

KHLEBNIKOV, V. S.

"Study of the Flow Through a Sphere in the Wake of a Body Around Which Super-sonic Flow is Taking Place"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aero-hydrodynamic Institute), 1971, Vol 2, No 1, pp 42-48 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B233)

Translation: The results of an experimental study of the nature of supersonic flow around a sphere with another body placed in front of it are described. The nature of the flow around the sphere was determined by Töpler Schlieren photographs of the flow using data from measuring the distribution of the thermal fluxes and pressure with respect to the surface of the sphere. The front body had the shape of a truncated cone or sphere and was fastened to a thin movable holder with rhombiform cross section. The sphere was fastened to a bottom holder; its diameter was 2.4 times greater than the diameter of the front body. The tests were run in a supersonic wind tunnel at $M_\infty = 3$ and 5. It was discovered that for $l < l_{cr} = 4.8$ d (l is the distance between the bodies, d is the diameter of the front body) burbling is observed around the sphere. When $l \geq l_{cr}$ the flow was rearranged. In the first case, maximum heat fluxes

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KHLEBNIKOV, V. S., Uch. zap. Tsentr. aero-gidrodinam. in-ta, 1971, Vol 2, No 1, pp 42-48

and pressures were observed at the points with the angular coordinate $\varphi = 50°$. When $l = l_{cr}$ a second thermal flux peak appeared at the front point. At this peak the heat exchange intensity was 2.2 times higher than in the case of the undisturbed flow around the sphere. The discovered intensification is explained by the effect of turbulence in the wake behind the front body.

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1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DESINTOXICATION ACTION OF THE HOME MADE PREPARATION OF   SL
   MOLECULAR POLYVINYL ALCOHOL IN INFECTIOUS HEPATITIS -U-
AUTHOR-(03)-KRYLOVA, O.M., SMIRNOVA, .A., KHLEBNIKOVA, I.M.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 19-22

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEPATITIS, POLYVINYL ALCOHOL, DETOXICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1168   STEP NO--UR/0504/70/042/005/0019/0022

CIRC ACCESSION NO--AP0123145
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0123145
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE RESULTS ARE GIVEN OF THE USE
  OF THE SOLUTION OF LOWMOLECULAR POLYVINYL ALCOHOL IN 95 CHILDREN WITH
  INFECTIOUS HEPATITIS OF MODERATE AND SEVERE FORMS WI TH   SHARPLY
  EXPRESSED INTOXICATION SYNDROME. THE RESULTS OBTAINED SHOWED THAT LOW
  MOLECULAR POLYVINYL ALCOHOL IN INTRAVENOUS ADMINISTRATION IN A DOSE OF
  ABOUT 1000 ML (3-5 DAY COURSE TREATMENT) MADE A RAPID AN D EADY
  DESINTOXICATION EFFECT: BY THE 4TH DAY FROM THE ONSET OF ITS USE SIGNS
  OF INTOXICATION FULLY DISAPPEARED IN 96PERCENT OF THE PATIENTS. IN MORE
  THAN A HALF OF THE CONTROL GROUP (55 OUT OF 100) THESE SI S STILL
  REMAINED BY THE 10TH DAY. THE CLINICAL OBSERVATIONS CONDUCTED MAKE IT
  POSSIBLE TO RECOMMEND THIS PREPARATION IN THE ACUTE STAGE OF INFECTIOJS
  HEPATITIS WITH A VIEW OF DESINTOXICATION.   FACIL IT: KAFEDRA
  INFEOTSIONNYKH BOLEZNEY LENINGRAD. SANITARNO-GIGIYENICH. MEDITSINSKOGO
  INSTITUTA NA BAZE BOL'NITSY IM. S. P. BOTKINA AND LABORATORIYA POLIMEROV
  LENINGRAD. INST. GEMATOLOGII I PERELIVANIYA KROVI.

UNCLASSIFIED

USSR   · UDC 576.852.23.097.29.07

APANASHCHENKO, N. I., FILIPPOVA, L. M., and KHLEBNIKOVA, N. N., Institute
of Epidemiology and Microbiology imeni Gamaleya and Moscow Institute of
Epidemiology and Microbiology

"Study of Diphtheria Toxins and Toxoids by Disk Electrophoresis in Poly-
acrylamide Gel"

Abstract: Study of 24 purified diphtheria toxins and toxoids prepared by
the reactor and stationary methods showed that the toxoids are electro-
phoretically more mobile than the toxins and the toxoids obtained by the
reactor method are more heterogeneous (they contain 7 or 8 fractions)
than those obtained by the stationary method (4 to 6 fractions). To de-
termine which of the fractions detected in polyacrylamide gel is the cell-
ular component of diphtheria toxoid and which is the toxic component,
purified stationary toxoid was separated by gel filtration on Sephadex
G-200 into its cellular (precipitating with antibacterial serum) and toxic
(flocculent) components. The cellular antigen in polyacrylamide gel
divided into two fractions. The more pronounced one had less electro-
phoretic mobility and was located at the cathode end of the electrophoregram
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APANASHCHENKO, N. I., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 37-42

(cellular antigen), while the other fraction was barely perceptible but possessed greater electrophoretic mobility and was located at the anode end. The toxic component separated into four fractions: two of them, the more massive, were located in the center and closer to the anode end; the other two, barely perceptible, were located as in the microbial com- ponent.

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USSR   UDC 621.397.61

SOROKA, Ye. Z., KHLEBORODOV, V. A., MAVRITSYN, V. G.

"Color Subcarrier Synthesizer for the PAL Color Television System"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 7, Mar 71, Author's Certificate No 295208, filed 2 Apr 69, published
4 Feb 71, p 170

Translation: This Author's Certificate introduces a color subcarrier syn-
thesizer for the PAL color television system. The synthesizer contains a
controlled quartz-crystal color subcarrier oscillator with an automatic
phase control system, a module for a +25 Hz frequency shift and a frequency
converter. The converted line frequency signals are sent to the converter
inputs. As a distinguishing feature of the patent, the synthesizer is
simplified by connecting one of the inputs of the frequency converter to
a line frequency pulse source through a filter of the 227 harmonic of the
line frequency, while the second input is connected to the same source
through a frequency divider by four and the above-mentioned filter.

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USSR   UDC: 621.397.662

KHLEBORODOV, V. A., SOROKA, Ye. Z.

"A Device for Recognizing the Color of the Decoding Module in the PAL Tele-vision System"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 3, Jan 71, Author's Certificate No 291375, Division H, filed 26 Sep 69,
published 6 Jan 71, p 162

Translation: This Author's Certificate introduces a device for recognizing
the color of a decoding module in the PAL color television system. The de-vice contains a half-line frequency pulse oscillator, a switch for ±45° phase
selection for the color synchronization signal which is controlled by pulses
from this oscillator, a module for restoring the subcarrier which may be made
in the form of an AFC system for the subcarrier generator, and a module for
setting the phase of the half-line frequency pulse oscillator. As a dis-tinguishing feature of the patent, the reliability of color recognition is
improved and recognition time is reduced by connecting quadrature and co-phased phase detectors in the module for setting the phase of the half-line
frequency pulse oscillator. A signal from the input of the module for re-storing the subcarrier is sent to one of the inputs of each of the phase

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KHLEBORODOV, V. A., SOROKA, Ye. Z., USSR Author's Certificate No 291375

detectors, while a signal from the corresponding output of the module for restoring the subcarrier is sent to the second input of each of the phase detectors. The outputs of the phase detectors are connected through full--wave rectifiers to an adder, and the signal from the adder is sent to the input of the half-line frequency pulse oscillator through an inhibit circuit to which field-frequency pulses are sent.

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USSR

KADMENSKIY, S. G., KALECHITS, V. YE., and KHLEBOSTROYEV, V. G., Voronezh
State University

"Stripping Reactions With Transfer of Two Nucleons and the Polarizability of
t, He^3"

Moscow, Yadernaya Fizika, Vol. 12, No. 2, Aug 70, pp 302-307

Abstract: The possibility of explaining anomalies in reactions of the type
(t, p), (He^3, n) by the polarizability of triton or He^3 in the field of the tar-
get nucleus is examined. These reactions occur in several nuclei in the $1p$-
shift when an anomalous peak is observed at zero angle in the angular distri-
bution for the case of momentum transfer $L = 2$. Computer calculations were made
to explain anomalous reactions with the aid of the polarizability of tritons for
reactions B^{10} $(t, p)B^{12}$ in which the anomaly appears most strongly in the cross
section. Calculations show that the relationship between the calculated ampli-
tudes of the reaction were little affected by variation in the width of the
potential hole. A graph of the amplitude of the reaction as a function of the

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KADMENSKIY, S. G., et al, Yadernaya fizika, Vol. 12, No. 2, Aug 70, pp 302-307

scattering angle shows that the maximum amplitude as calcualted by the plane wave approximation is greater than the maximum amplitude as calculated considering the polarizability of tritons by a factor of 250. It is concluded that none of the mechanisms presently known can explain the anomalous features of the cross section of the stripping reaction with transfer of two nucleons. It is hypothesized that these characteristics can be explained only by subsequent consideration of wave distortion, including distortion of wave functions of the center of gravity of triton and the wave function of the proton.

2/2

KHLEBOVICH, I.A.

Geology

USSR   UDC: 621.059.001.5

Mal'tsev, B. K., Khlestkin, D. A., Candidates of Technical Sciences, and
Keller, V. D., Engineer, All-Union Institute of Heat Engineering

"Experimental.Study of the Efflux of Saturated and Underheated Water at
High Pressures"

Abstract: The All-Union Institute of Heat Engineering has produced a test
stand for investigation of critical modes of escape of hot water from a
pressure vessel with initial pressures of up to $240 \cdot 10^5$ N/m^2. In contrast
to earlier test stands, this stand allows a stable mode to be maintained
with any parameters for an extended period of time. The test stand was
used to study the flow modes of water escaping from leaks modeling those
which might arise in the high-pressure cooling circuit of a nuclear power
reactor. The data produced on the flows of saturated and underheated water
can be used to calculate the critical flow rates of saturated and under
heated water, and indicate that: 1) At pressures of over $70 \cdot 10^5$ N/m^2, a

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Mal'tsev, B. K., Khlestkin, D. A., and Keller, V. D., Moscow, Teploenergetuka, No 6, 1972, pp 61-63.

value of 1/d=9 is probably the maximum relative channel length at which a critical flow of saturated water is metastable. 2) Increasing the under-heating of water to the saturation point increases metastability of the flow, with otherwise equivalent conditions. 3) As the initial water pressure increases, metastability decreases, disappearing at pressures $p_0 \geq 200 \cdot 10^5$ N/m^2.

2/2

1/3   012   UNCLASSIFIED   PROCESSING DATE--02OCT70

TITLE--CONDITIONS OF DEEPSEATED PETROGENESIS -U-

AUTHOR-(05)-SOBOLEV, V.S., BAKUMENKO, I.T., DOBRETSOV, N.L., SOBOLEV,
    V.V., KHLESTOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, PP 24-35

DATE PUBLISHED------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, IGNEOUS ROCK, UPPER MANTLE, GEOLOGY, GEOPHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0042   STEP NO--UR/0210/70/000/004/0024/0035

CIRC ACCESSION NO--AP0114442
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0114442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME ASPECTS OF MAGMA FORMATION IN
RELATION WITH WATER REGIME BASED UPON RECENT DATA OBTAINED BY THE
AUTHORS CONCERNED TO THE UPPER MANTLE COMPOSITION AND TEMPERATURE OF
FORMATION OF IGNEOUS ROCKS ARE CONSIDERED IN THE PAPER. THE STUDY OF
XENOLITHS IN KIMBERLITES AND CRYSTALLINE INCLUSIONS IN DIAMONDS PROVES
THE GREAT DIFFERENTIATION OF THE UPPER MANTLE FROM PREDOMINANT
PERIDOTITES UP TO ECLOGITES AND GROSPYDITES. THE DIAMOND BEARING
PERIDOTITES ARE THE DEEPEST ORIGIN XENOLITH'S. THE BIOTITE INCLUSIONS
DOESN'T YET FOUND IN DIAMONDS BUT PHLOGOPITE IS PRESENT IN THE MOST
UPPER PART OF THE MANTLE ACCORDING SOME DATA, AND KIMBERLITIC MAGMA
ITSELF IS FORMED IN WATER PRESENCE. THE DEEP FLUIDES ARE OF COMPLEX
COMPOSITION, AND PARTIAL WATER PRESSURE FLUCTUATES WITHIN A WIDE RANGE.
DEPENDING ON RELATIVE VALUE OF P H SUB2 O THREE TYPES OF MAGMAS CAN BE
DISTINGUISHED: I. THE MOST "DRY" MAGMAS, WHICH CAN BE ERUPTED UP TO
THE SURFACE; II. MAGMAS, FORMED AT HIGH P SUBTOTAL AND DECREASED P H
SUB2 O WHICH ARE ABLE TO ASCEND; III. MAGMAS FORMED AT LOW P SUBTOTAL
AND INCREASED P H SUBW O WHICH ARE RAPIDLY CRYSTALLISED AT DECREASE OF P
SUBTOTAL (MIGMATITE FIELD). IT PROVED THAT TRANSVAPORIZATION PLAYS A
SIGNIFICANT ROLE, IT DECREASES THE MELTING TEMPERATURE AND IMPROVES THE
POSSIBILITY OF MAGMA ASCENDING. THE PROBLEMS OF DRAINAGE OF HOST
TERRANES FLUIDS AT MAGMA FORMATION AND FLUIDS RELEASE AT MAGMA
CRYSTALLISATION ARE ALSO CONSIDERED. THE SPECIAL DIAPHTHORESIS
PHENOMENON IS CONNECTED WITH THESE PROBLEMS.

UNCLASSIFIED

CIRC ACCESSION NO--AP0114442
ABSTRACT/EXTRACT--THE PROBLEM OF FURTHER STUDY OF VITREOUS AND GAS LIQUID
  INCLUSIONS IN MINERALS FOR THE PURPOSE OF MORE PRECISE MODEL OF WATER
  REGIME CONSTRUCTION IN THE EARTH'S CRUST AND MANTLE IS POSED.

UNCLASSIFIED   89

USSR

UDC 662.311.1

KHLEVNOY, S. S., Novosibirsk

"Extinguishing of an Explosive by Discontinuance of the Light Radiation Effect"

Abstract : The transfer characteristics of a burning explosive from steady conditions, when a light radiation of given densi- ty q_0 is being supplied to its surface, to steady burning con- ditions in absence of radiation are analyzed. Obviously, such transfer possibility is determined mainly by the relaxation ti- me t_r of the most inertial zone in the burning explosive, which is the heated layer of its condensed phase. The other zones re- lax much more rapidly and, therefore, can be considered non- -inertial if the discontinuance time of light radiation t_1 is little more than their relaxation time t_r. On the basis of this condition, an explosive extinguishing criterion by instantaneous

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USSR

discontinuance of the light radiation effect ($t_1 \ll t_r$) was es-
tablished. Formulas determining the extinguishing conditions,
the critical temperature gradient on the rear boundary of the
chemical k-phase at which the extinguishing starts and the ef-
fect of explosive transparency, are derived and discussed. On
the basis of formulas characterizing the burning rate of the ex-
plosive depending on the initial temperature and the extingui-
shing criterion, dependences of the critical light flux on ex-
plosive transparency σ are analyzed by reference to diagrams
for a nitroglycerin gunpowder of type H. At $0 < \sigma < 16.5$ 1/cm,
there is a zone of steady burning by discontinuance of any
light radiation effect. The less the burning rate of explosive
depends on the initial temperature, the more probable is the
transfer of explosive to other steady burning conditions after
discontinuance of the light effect. Seven illustr., one table,
28 formulas, 11 biblio. refs.

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- 36 -

USSR

UDC:536.46+662.215.1

KHLEVNOY, S. S., Novosibirsk

"Ignition of Explosive by Metal Plate"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 295-301

Abstract: Ignition of an explosive by a metal plate heated by an electric current and placed suddenly in contact with the explosive, which fills the space to the right of the point of contact. is studied in this work. It is assumed that there are no catalytic reactions or thermal resistance at the point of contact. The conditions of existence of the solutions pro- duced, i. e. the conditions of stability of the explosive under which the explosive is capable of burning stably upon achieving ignition temperature at the surface, are analyzed. It is pointed out that errosion of the explosive during the process of heating may change the heat balance in the reaction zone, depending on the heat exchange conditions on the moving surface of the explosive and also on the properties of the materials, some- times leading to stable burning.

1/1

TITLE--PRINCIPLES OF PRODUCTION AND CONTROL OF MEASLES VACCINE IN DOG
-KIDNEY CELL CULTURES -U-

AUTHOR--STARKE, G., KHLINAK, P.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 73-78

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TISSUE CULTURE, MEASLES, VIRAL VACCINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0062   STEP NO--UR/0402/70/000/001/0073/0078

CIRC ACCESSION NO--AP0103742
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0103742   UNCLASSIFIED   PROCESSING DATE--11SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRITICISM OF DIFFERENT SUBSTRATES
FOR VIRUS GROWTH PROMPTED APPLICATION OF PRIMARY CULTURES OF DOG KIDNEY
CELLS FOR PRODUCTION OF LIVE MEASLES VACCINE IN GDR. THE PAPER
DESCRIBES DEVELOPMENT AND CONTROL OF CELL DILUTIONS AS A PREREQUISITE
FOR PREPARATION OF PRIMARY CELL CULTURES FROM DOG KIDNEYS AS THE
SUBSTRATE FOR VIRUS GROWTH IN PRODUCTION OF THE VACCINE. THE PRINCIPLE
OF VACCINE CONTROL IS DEMONSTRATED ON THE EXAMPLE OF LIVE MEASLES
VACCINE.

UNCLASSIFIED

USSR

IVANOV, V. V., KHLOBYSTOV, V. V.

"Comparison of Two Methods of Estimation of the Probability Characteristics of the Solutions of Systems of Stochastic Differential Equations"

Vychisl. i prikl. mat. Mezhved. nauch. sb. [Computational and Applied Mathematics. Interdepartmental Scientific Collection], 1972, No 19, pp 32-43 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V246 by the authors)

Translation: This work presents a comparison of two methods for estimation of the probability characteristics of the solutions of nonlinear stochastic systems -- the method of B. G. Dostupov and the method of planning extremal experiments, both for specific problems and for a class of problems. The accumulation of computation error over an interval is considered, for error developing due to errors in the solution of the problem and rounding error. Estimates of the estimates are produced and conditions are presented under which it is expedient to use one method or the other.

1/1

USSR   UDC 621.789:620.186.1

LIVSHITS, B. G., ASTRAKHANTSEVA, N. A., IZGORODIN, A. K., NIKOLAYEVA, V. N.,
(DECEASED), KHLOMOV, V. S., and TSVILING, M. YA., Moscow Institute of Steel
and Alloys

"Effect of Titanium on the Properties of the Beta- and Beta$_2$-Phases and
Brittleness of Annealed Alloys of the YuNDK35T5 Type"

Abstract: The effect of titanium on the brittleness of type YuNDK35T5 alloys
in the equilibrium state at 770°C was studied, and hardness, chemical composi-
tion of beta- and beta$_2$-phases, and their effect on the failure process were
determined. The four test samples contained (in wt %): 34-31 Fe, 15 Ni,
8 Al, 35 Co, 4,5,6,7 Ti, and 4 Cu. The chemical composition of the phases is
also given. Mechanical tests showed that as titanium content increases so does
bend strength, percentage of cases of bending with cracks of the beta-phase,
and percentage of cases of cessation of beta-phase precipitation, while decreases
were noted for the number of secondary cracks in one sample, percentage of
branch cracks, and beta-phase microhardness. The value of the critical tem-
perature was determined for alloys YuNDK35T5 and YuNDK40T7 which has been
1/2

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USSR

LIVSHITS, B. G., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 8, Aug 73, pp 37-40

arc melted and annealed at $770^\circ C$ for 2500 hours. T_{cr} was 680 and $700^\circ C$,
respectively. The effect of the beta- and $beta_2$-phases on alloy failure for the
varying titanium content was explained in that in all the studied alloy samples
a crack passes into the $beta_2$-phase and bends the beta-phase precipitate.
With increased Ti content, the attempt of cracks to bend beta-phase precipitates
grows. In the alloy with 4% Ti, in 30 cases out of 100, cracks bend in their
advancement of the beta-phase, and in the alloy with 7% Ti, in 65 cases out of
100. Crack cessation occurs, as a rule, in the beta-phase precipitations.
This indicates that the beta-phase is less brittle than the $beta_2$-phase and
that with increased Ti content the beta-phase does a better job than the $beta_2$-
phase in hindering the advancement of a brittle crack. Three figures, two
tables, five bibliographic references.

2/2

KHLOPIN A.N.

AA0101179

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, /-70

242606 PLUNGER e.g. for fuel pump with spherical
head, carrying a footstep bearing in the
neck of which is a bracing ring, differing in the
bearing having a shoulder to which is fastened a
horseshoe-shaped frame of plastic to hold the ring.
The ring and shoulder may have shaped slots for
the frame to be pressed in . This gives a more
reliable fixing of the footstep bearing. Footstep
bearing 1 is connected to plunger 2 by bracing ring
3, fixed by frame 4. The material of the wall of
the frame is crimped around shoulder 5 on the foot-
step bearing and pressed into slots 6 and 7 on the
endface surface of ring 3 and shoulder 5.
2.1.68 as 1207319/24-6.POLIANSKII A.F.et al.(10.9.69)
Bul 15/25.4.69. Class 46f, 59a. Int.Cl.F 02c, F 05b.

19850834

AA0101179

19850835

AA0101179
AUTHORS: Polyanskiy, A. F.; Kontorovich, B. M.; Koblik, L. M.;
Gusakov, V. I.; Tokarev, N. N.; Khlopin, A. N.; Borovik, S. A.

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19850836

USSR

CHURILOV, V. P., KHLOPOV, G. I., Members of the Scientific and Technical
Society of Radio Engineering, Electronics and Communications imeni A. S.
Popov

"Some Particulars in the Design of Cassegrainian Antennas for the Millimeter
Wavelength Range"

Abstract: The paper presents the results of an experimental study of the
radiation patterns of a two-dish Cassegrain antenna (diameter of the large
dish 1100 mm, f/D = 0.45) operating on a wavelength of 4 mm as a function of
certain structural peculiarities of the small dish and the exciter. An an-
nular choke groove ¼-wavelength deep on the edge of the small dish prevents
excitation of the "unexposed" surface of the dish and reduces the level of
short-range lateral radiation by an average of 7-8 dB in the region of solid
angles where the accuracy of the aperture method decreases. A conical flange
added to the hyperbolic surface of the small dish appreciably reduces the
mean-square level of long-range lateral radiation due to improved intercep-
tion of the power from the exciter. The authors thank B. M. Minkovich for
constructive criticism.
1/1

USSR

UDC: 8.74

FOMIN, V. D., KHLOPKO, N. S., CHESNOKOV, A. N.

"Output of Digital Information by Digital Computer"

Tr. Irkutsk. Un-ta Ser. Mat. [Works of Irkutsk University, Mathematics Theory], 1970, 74, No 6, pp 215-218 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V516, by V. Mikheyev

Translation: The expediency is analyzed of output of information from a digital computer with the type ATsPU-128 wide-format page printer. The advantage of the ATsPU is that in place of a printing drum carrying various lines consisting of the same digital, alphabetic and special characters, the machine carries a printing drum of the same size, the surface of which consists of several identical sectors with lines of numbers. Each sector contains 12 lines with the basic numerals (0,...,9) and signs. This drum design allows the output of digital information to be several times faster, since several rows can be printed with one rotation of the printing drum. Experiments have shown that when the normal printing drum is replaced by the numbers-only drum in the ATsPU-128-2 printer, the speed of output of digital information reaches 3200 characters per second. It is noted that a similar replacement in the ATsPU-128-3 will allow

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USSR

Fomin, V. D., Khlopko, N. S., Chesnokov, A. N., Tr. Irkutsk. Un-ta Ser. Mat., 1970, 74, No 6, pp 215-218

the rate of printout of digital information to be increased to approximately 4000 characters per second.

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USSR   UDC 621.771.01.016

POLUKHIN, V. P., and KHLOPONIN, V. N.

"Effect of Cold Rolling Parameters on the Neutral Angle and Lead"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya"
Publishing House, No 64, 1970, pp 33-36

Translation: The effect of the initial strip thickness, friction in the center
of deformation, elastic compression of the rolls, and the zone of complicated
strain on the position of the neutral section during cold rolling of stainless
steel is considered. The investigation was made using a mathematical model of
the sheet rolling process, realized on a Minsk-22 computer.
    The relative value of the neutral angle (relationship to the angle of
contact) during cold rolling of thin sheet does not depend on the initial
thickness of the strip being rolled. Elastic compression of the rolls leads
to shift in the neutral section toward the exit from the rolls. Decreasing
the friction ratio also causes the neutral section to shift in this direction.
In this, due to elastic compression of the rolls, where the angle of contact
is greater than the angle of repose the established rolling process is carried
on, and where the angle of contact exceeds the doubled angle of repose the
process of full slippage appears. Five illustrations and six bibliographic
entries.
1/1

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USSR

UDC 621.771.01.016

POLUKHIN, V. P., and KHLOPONIN, V. N.

"The Effect of Tension on the Position of the Neutral Section During Cold Rolling of Stainless Steel"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No 64, 1970, pp 37-40

Translation: An analysis is made of the effect of even, consistent specific tension and even, consistent full tension on the position of the neutral section. It is shown that as even, consistent specific tension increases the position of the neutral section shifts toward the exit from the rolls, while remaining constant with changes in even, full consistent tensions. The results agree with the conclusions of Yu. M. Feynberg. But, due to an arbitrary assumption of the even distribution of specific pressure over the contact surface, Yu. M. Feynberg's formula only permits one to correctly evaluate the qualitative dependency of the neutral angle on tension. The research was conducted using a mathematical model of the sheet rolling process, performed on the Minsk-22 computer. Three illustrations, eight bibliographic entries.

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USSR

UDC 621.771.016

POLUKHIN, V. P., POLUKHIN, P. I., KHLOPONIN, V. N., and PODYMOV, V. F.

"An Analysis of Conditions during Cold Rolling of Low-Carbon Steel"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No 64, 1970, pp 29-33

Translation: Using a mathematical model of the sheet rolling process on a Minsk-22 computer, investigations were carried out of the power parameters of cold rolling low-carbon 08kp steel. A nomogram was obtained which describes the effective area of rolling under the given conditions. The substantial influence of elastic compression of the rolls on the rigidity of the rolling stand is demonstrated. Results from the study are compared with results which describe cold rolling of stainless steel. Two illustrations and five bibliographic entries.

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USSR

KULIK, A. F., BARANOV, N. V., KHLOPOV, V. P., OBODZINSKIY, V. G.

"Automatic Device for Fatigue Testing of Aircraft Structures"

Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972,
Patent No 359564.

Translation: 1. An automatic device for fatigue testing of aircraft struc-
tures, containing a programming device, controling the operation of the
control device, actuating mechanisms loading the structure being tested,
feedback sensors tracking the signal processing system, an emergency pro-
tection device, differing in that in order to increase the sensitivity and
operational reliability, the control device consists of contact couples
connected by a contact in the tracking system into circuits of switches
which switch the actuating mechanism to loading or unloading.

2. A device according to Claim 1, differing in that in order to pre-
vent nonfatigue rupture of the structure, the feedback sensors are installed
at the test points and connected with the tracking system through the con-
tacts of a switch.

3. A device according to Claim 1, differing in that in order to in-
crease the upper limit of loading frequency of the structure, the hydraulic

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USSR

KULIK, A. F., BARANOV, N. V., KHLOPOV, V. P., OBODZINSKIY, V. G., Otkrytiy-
Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent
No 359564.

system includes a hydraulic accumulator and electrically controlled hydraulic
distributors, connecting the accumulator to the actuating cavity of the
force exciter during the load cycle, switching the accumulators from the
operating cavity of the force exciter to the pressure line during the unload
cycle.

4. A device according to Claim 1, differing in that in order to in-
crease the reliability of operation of the emergency protection system by
checking its readiness, it includes emergency imitators consisting of buttons
connected to the circuit controling the switches of the emergency protection
system.

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- 83 -

USSR

UDC 620.163.3

KHLOPOTOV, O. D., Leningrad Plant Higher Technical Educational Institution.

"The Relationschip Between the Impact Strength and Other Mechanical Characteristics"

Kiyev, Problemy Prochnosti, No. 9, Sep 71, pp 34—38

Abstract : Investigation results are presented of possible analytical relations, the mathematical evaluation, and the use of other standard mechanical characteristics for the determination of the impact strength with regard for the relative residual contraction of the specimen by tension. In the suggested formula characterizing the relationschip between the impact strength a_n and the relative residual contraction ψ

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- 115 -

USSR

KHLOPOTOV, O. D., Problemy Prochnosti, No 9, Sep 71, pp 34-38

$$a_n = k \cdot \frac{\psi}{1 - \psi}$$, the coefficient k was experimentally determined for a large number of steels. The conformity of experimental with calculated values of k was established. The problem of the relationship between plasticity characteristics and geometric dimensions of a short recess of a cylindrical specimen is discussed applying the principle of the conservation of minimum side areas of the deformed part. Four illustr., one table, 18 formulas, three biblio. refs.

2/2

1/2   021
TITLE—REFACTORY TOOL STEEL -U-   UNCLASSIFIED   PROCESSING DATE--09OCT70

AUTHOR-(02)-KACHALKIN, G.S., KHLOPUSHIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 40

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS—TOOL STEEL, ALLOY DESIGNATION, CHROMIUM NICKEL STEEL, METAL
   CASTING, CAST STEEL, ALLOY COMPOSITION, REFRACTORY METAL/(U)KH18N24SZL
   TOOL STEEL, (U)KH18N35 TOOL STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1372
                                    STEP NO--UR/0128/70/002/000/0040/0040
CIRC ACCESSION NO--AP0116821
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0116321   UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A NEW TYPE OF STEEL KH18N35 WAS
DEVELOPED CONTG.: C 0.25-0.4, SI 2-3, MN 0.3-0.8, CR 16-20, NI 33-37, P
0.03, S 0.05PERCENT, CHARACTERIZED BY GOOD REFRACTORY PROPERTIES.
DESPITE ITS HIGH PRICE COMPARED TO KH18N24S2L STEEL, IT CAN BE USED
SATISFACTORILY IN THE PRODUCTION OF HARDENED STEELS.

UNCLASSIFIED

AA0052414 KHLUDEYEV   P, N UR 0462

Soviet Inventions Illustrated, Section I Chemical, Derwent, 2/70

243463   CHARGING OF IGNITERS such as percussion
igniters/primers/ for small-gauge sporting
and hunting ammunition comprises vibrational
treatment and subsequent pressing of the igniter
composition filled in the igniter bodies and is
modified, for ensuring long-lasting uniform
composition and reliable performance, by intro-
duction into the igniter body before the
vibrational treatment of a slight amount of a
lacquer such as a 1.5-2.0% cellulose nitrate
lacquer. The so formed igniter paste is then
subjected to vibration for approx. 35 secs. dried
and pressed.   21.12.67.
as 1204981/40-23, KOROLEV, P.S. et al. (30.9.69)
Bul. 16/5.5.69. Class 78e, 72d, Int. Cl. C 06c,
F 42b.

Korolev, P. S.; Kondyakova, Ye. V.; Novozhilova, L. I.;
Khludeyev, P. N.

19821045

1/2   019

UNCLASSIFIED

TITLE--STEREOCHEMISTRY OF NITROGEN HETEROCYCLES. XXIII. ACETIC AND DIPHENYLACETIC ESTERS OF STEREOISOMERS OF

PROCESSING DATE--23OCT70

AUTHOR-(04)-KHLUDNEVA, K.I., SOSNOVA, V.V., SOKOLOV, D.V., LITVINENKO, G.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 43-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, HETEROCYCLIC NITROGEN COMPOUND, ACETATE, QUINOLINE, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1901

STEP NO--UR/0360/70/020/002/0043/0047

CIRC ACCESSION NO--AP0123685

UNCLASSIFIED

CIRC ACCESSION NO--AP0123685   UNCLASSIFIED   PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO SYNTHESIZE THE TITLE ESTERS, THE HCL SALT OF EACH OF THE 5 MOST AVAILABLE STEREOISOMERS OF THE TITLE HETEROCYCLE WAS HEATED WITH AC SUB2 O AND ACCL, OR WITH PH SUB2 CHCOCL WITHOUT SOLVENT. THE SINGLE ISOMERS DIFFER IN THE ABSORBABILITY ON AL SUB2 O SUB3, WHICH IS AFFECTED BY THE MUTUAL CONFIGURATION OF THE RINGS AND THE SPATIAL ORIENTATION OF ME AND AC OR DIPHENYLACETYL GROUPS. THE R SUBF VALUES IN AN ELUTION WITH ET SUB2 O ON A THIN AL SUB2 O SUB3 LAYER RANGE FRM 0.09 TO 0.96 AND FROM 0.03 TO 0.85 WITH ACETIC AND DIPHENYLACETIC ESTERS, RESP.; EACH DIPHENYLACETIC ESTER IS ABSORBED MORE STRONGLY THAN THE RESP. ACETIC ESTER. THE POSITIONS AND SHAPES OF SOME ABSORPTION BANDS IN THE IR SPECTRA ARE INFLUENCED BY THE SPATIAL ORIENTATION AND CHARACTER OF THE ACYLOXY GROUP.   FACILITY: INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

USSR   UDC 547.26'118

ITALINSKAYA, T. L., SHVETSOV-SHILOVSKIY, N. I., KHLUDOVA, A. I., and
MEL'NIKOV, N. N.

"1,5,2,3-Phosphathiadiazoles"

Abstract: Earlier research showed that the reaction of 1-chloro-4-alkyl(aryl)-
2-phenyl-1,2-dihydro-1,5,2,3-phosphaoxadiazoles (I) with phosphorus thio-
trichloride yielded 1-chloro-1-thio-4-alkyl(aryl)-2-phenyl-1,2-dihydro-1,5,2,3-
phosphaoxadiazoles (II). Continuous heating of these compounds with phosphorus
thiotrichloride leads to the replacement of oxygen in the ring with sulfur to
form 1,5,2,3-phosphathiadiazoles (III). Addition of sulfur and triethylamine
hydrochloride fails to affect the (II):(III) product ratio formed in the
reaction of (I) with phosphorus thiotrichloride. Distilling the volatile
reaction products of compounds (I) with phosphorus thiotrichloride by pass-
ing through dry nitrogen and the addition of ferrous trichloride facili-
tates the formation of compound (III).

1/1

Vector Studies

(1)

USSR

UDC 599.323.4:591.526:59.08

LITVIN, V. Yu., KARULIN, B. Ye., NIKITINA, N. A., KARASEVA, Ye. V., and
KHLYAP, L. A., Institute of Epidemiology and Microbiology, Academy of
Medical Sciences USSR, Moscow

"Repeated Trapping and Radioisotopic Labeling in Studying the Use of
Territory by Rodents (as Illustrated by the Common Vole)"

Abstract: The advantages and disadvantages of studying the home ranges of
small rodents (voles) by labeling them with P^{32} and Co^{60} are compared. The
use of P^{32} and recording of radioactive excretions is useful in determining
the size and approximate contours of the animals' ranges over several days
and on individual days. Drawbacks of the technique are the small number of
animals that can be observed at the same time (on common territory) and the
short period in which information can be collected. Labeling the animals
with Co^{60} and tracking them round the clock produces the most detailed and
objective information. The resolving power of the method is very great
but its usefulness is limited by the small number of animals that can be
observed at the same time. Both methods yield more information than the
1/2

USSR

LITVIN, V. Yu., et al., Zoologicheskiy Zhurnal, No 6, 1973, pp 931-938

old technique of amputating toes. The choice is determined by the particular objective of a study and by the degree of precision and completeness of the results desired.

2/2

- 78 -

USSR

UDC: 778.4

KOTOSONOV, N. V., KHLYAVICH, Ya. L., KOLESNIKOV, A. I., BAZARSKIY,
O. V., DUSHKIN, I. R., and VISLYANSKIY, A. G.

"Recording and Restoring Microwave Holograms With Gradations of
the Interference Picture"

Abstract: The purpose of this brief communication is to compare
the quality of images restored from binary and multigradation
radioholograms in the optical range. A block diagram of the holo-
gram recording equipment used for the experiments described in
this paper is shown, and a description of its operation given.
The radiation source used was a type OV-22 backward wave tube,
with a frequency of 125 GHz. The method of processing the ob-
tained recordings is described. For restoration, the hologram
was photographically reduced and was then restored in the diverg-
ing beam of a helium-neon laser type LG-36A. Photographs of the
object, its image restored by multigradation hologramming, and
the image restored by binary hologramming, are reproduced for
comparison. The experiment showed that while the resolving capa-
bility of binary and multigradation holography are the same,
1/2

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USSR

KOTOSCNOV, N. V., et al, Radiotekhnika i elektronika, No 8, 1972, pp 1731-1732

UDC: 778.4

the quality of the restored image is better with the latter method.

2/2

USSR   UDC: 778.4

BAZARSKIY, O. V., KOTOSONOV, N. V., KHLYAVICH, Ya. L.

"Investigating a Holographic Method for Obtaining Visible Images
of Phase Objects in the Microwave Range"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1733-1734

Abstract: Experiments described by the authors of this brief com-
munication show how visible images of phase objects in the micro-
wave range can be obtained by using the Cernik principle with
full suppression of the zero-order spectrum -- i.e., the dark-
field method. A block diagram of the equipment for doing this
is reproduced and its operation explained. The radiation source
in the apparatus was a backward wave tube, type OV-22, operating
at a frequency of 125 GHz, and the object was a phase diffraction
grating. A photograph of the restored image of the grating, as
obtained by this method, is reproduced. The experiment demon-
strates that it is possible to see phase objects with slight
phase contrast in the microwave range.

1/1

USSR ·

KOTOSONOV, N. V., KHLYAVICH, YA. L., BAZARSKIY, O. V., Voronezh State University

UDC 621.396.67

"Study of the Spatial Radiation Coherence of Some Superhigh Frequency Antennas"

Gor'kiy, Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 150-152

Abstract: A study was made of the spatial coherence of the radiation of some superhigh-frequency antennas. The requirements on the radiators which are usually used to record radioholograms are defined. An analysis performed for quasimonochromatic superhigh-frequency sources with a coherent time much less than the observation time at each point demonstrated that application of horn antennas as radiators for recording radioholograms is inexpedient as a result of a a different degree of spatial coherence in the E and H planes. The highest degree of spatial coherence is noted in the case of lens antennas with bell-shaped field distribution in the aperture for sufficiently large values of β. However, as a result of a significant radiation intensity gradient of the object, distortion of the image can occur during reproduction. A lens antenna with cylindrical field distribution in the aperture [N. V. Kotosonov, et al., Trudy XXV Vsesoyuznoy sessii NTO RES, Moscow, 1969] having a high degree of spatial coherence shapes uniform intensity distribution on

1/2

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